Listing of Claims

1 (original). A transgenic plant cell transformed with a nucleic acid encoding a polypeptide, wherein the polypeptide is defined in SEQ ID NO:13.

2 (original). The transgenic plant cell of claim 1, wherein the nucleic acid comprises a polynucleotide as defined in SEQ ID NO:8.

3 (currently amended). A transgenic plant cell transformed with a nucleic acid encoding a full-length polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity, wherein expression of the polypeptide in the cell results in the cell having increased tolerance to drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell; wherein the nucleic acid is selected from the group consisting of:

a) a nucleic acid that hybridizes under stringent conditions to a polynucleotide having a sequence as defined in SEQ ID NO:8; and

b) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence ~~of~~ as defined in SEQ ID NO:8;

and wherein the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

4 (currently amended). A transgenic plant cell transformed with a nucleic acid encoding a full-length polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity and at least 90% sequence identity with a polypeptide having a sequence as defined in SEQ ID NO:13, wherein expression of the polypeptide in the cell results in the cell having increased tolerance to drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell.

5 (previously amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein

the cell is derived from a monocot.

6 (previously amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein the cell is derived from a dicot.

7 (previously amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein the cell is derived from a plant ~~is~~ selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, a solanaceous plant, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, and perennial grass.

8 (cancelled).
9 (cancelled).
10 (cancelled).

11 (original). An isolated nucleic acid encoding a polypeptide, wherein the nucleic acid comprises a polynucleotide that encodes the polypeptide as defined in SEQ ID NO:13.

12 (original). The nucleic acid of claim 11, wherein the nucleic acid comprises the polynucleotide as defined in SEQ ID NO:8.

13 (cancelled).
14. (cancelled).

15 (previously amended). A seed comprising a transgene which comprises a nucleic acid encoding a full-length polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity, wherein the nucleic acid is selected from the group consisting of:

a) a polynucleotide having a sequence as defined in SEQ ID NO:8;
b) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

c) a nucleic acid that hybridizes under stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8;

d) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

e) a nucleic acid encoding a polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13;

wherein

i) the seed is true breeding for increased tolerance to drought or temperature less than or equal to 0°C; and

ii) the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

16 (currently amended). An isolated recombinant expression vector comprising a regulatory sequence operatively linked to a polynucleotide encoding a polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity, wherein the polynucleotide is selected from the group consisting of:

a) a polynucleotide having a sequence as defined in SEQ ID NO:8; and

b) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

wherein expression of the polypeptide in a plant cell results in the cell having increased tolerance to drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell.

17 (currently amended). A method of producing a transgenic plant comprising a nucleic acid encoding a full-length polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity, comprising the steps of;

a) transforming a plant cell with an expression vector comprising the nucleic acid selected from the group consisting of:

i) a polynucleotide having a sequence as defined in SEQ ID NO:8;

ii) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

iii) a nucleic acid that hybridizes under stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8;

iv) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

v) a nucleic acid encoding a polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13;

and

b) generating from the plant cell a the transgenic plant that expresses the polypeptide;

wherein:

i) the plant has increased tolerance to drought or temperature less than or equal to 0°C; and

ii) the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

18 (original). The method of claim 17, wherein the expression vector comprises the polynucleotide as defined in SEQ ID NO:8.

19 (currently amended). The method of claim 17; wherein the nucleic acid hybridizes under said stringent conditions to the nucleic acid having the sequence as defined in SEQ ID NO:8 or to the full-length complement of the nucleic acid having the sequence ~~of~~ as defined in SEQ ID NO:8.

20 (currently amended). The method of claim 17; wherein the polypeptide has at least

90% sequence identity with the polypeptide having the sequence as defined in SEQ ID NO:13.

21 (previously presented). The transgenic plant cell of claim 1, wherein the plant is maize.

22 (previously presented). The transgenic plant cell of claim 2, wherein the plant is maize.

23 (previously presented) . The transgenic plant cell of claim 1, wherein the plant is soybean.

24 (previously presented). The transgenic plant cell of claim 2, wherein the plant is soybean.

25 (previously presented). The transgenic plant cell of claim 1, wherein the plant is cotton.

26 (previously presented). The transgenic plant cell of claim 2, wherein the plant is cotton.

27 (previously presented). The transgenic plant cell of claim 1, wherein the plant is canola or rapeseed.

28 (previously presented). The transgenic plant cell of claim 2, wherein the plant is canola or rapeseed.

29 (previously presented). The seed of claim 15, wherein the transgene comprises the polynucleotide having the sequence as defined in SEQ ID NO:8.

30 (previously presented). The seed of claim 15, wherein the transgene comprises the polynucleotide encoding the polypeptide having the sequence as defined in SEQ ID NO:13.

31 (currently amended). The seed of claim 15, wherein the transgene comprises the nucleic acid that hybridizes under said stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8.

32 (currently amended). The seed of claim 15, wherein the transgene comprises the nucleic acid that hybridizes under said stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8.

33 (previously presented). The seed of claim 15, wherein the transgene comprises the nucleic acid encoding the polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13.

34 (previously presented). The method of claim 17, wherein the expression vector comprises the polynucleotide encoding the polypeptide having the sequence as defined in SEQ ID NO:13.

35 (currently amended). An isolated recombinant expression vector comprising a regulatory sequence operatively linked to a nucleic acid encoding a polypeptide having ~~PP2A-4~~ protein phosphatase 2A catalytic subunit activity, wherein the nucleic acid is selected from the group consisting of:

a) a nucleic acid that hybridizes under stringent conditions to a polynucleotide having a sequence as defined in SEQ ID NO:8;

b) a nucleic acid that hybridizes under stringent conditions to a full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

c) a nucleic acid encoding a polypeptide having at least 90% sequence identity to a polypeptide having a sequence as defined in SEQ ID NO:13;

wherein:

i) the regulatory sequence is not an *Arabidopsis thaliana* ~~PP2A-4~~ protein phosphatase 2A catalytic subunit promoter; ~~and~~

ii) expression of the polypeptide in a plant cell results in the cell having increased tolerance to drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell; and

iii) the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

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